



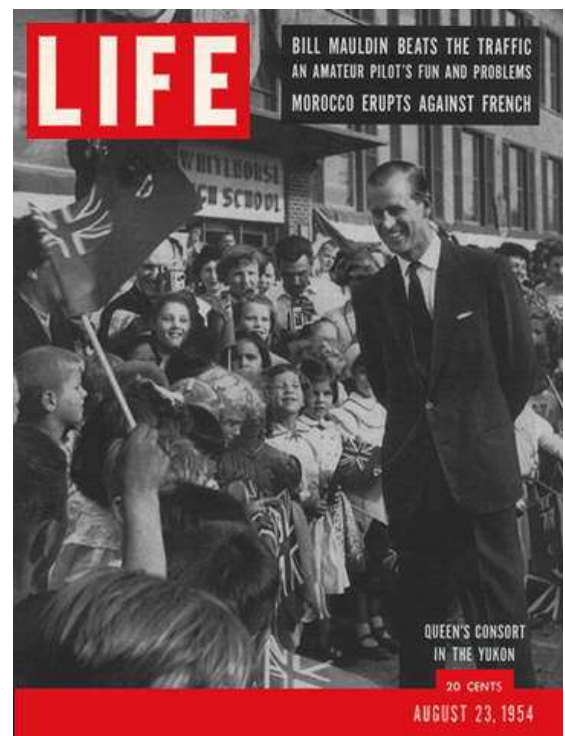
**PHILIP**  
**EMEAGWALI**  
**And The Internet**

**Part 2—Childhood**



Philip was born on August 23, 1954 in Akure. That is a city in Nigeria, a country in west Africa. He was given several names at birth: Ojo, Chukwurah, and Philip. He was named after Prince Philip, the Duke of Edinburgh, the husband of Queen Elizabeth. The Queen was Nigeria's ceremonial leader in the year he was born.

**Interesting Birthday Fact:** Philip Emeagwali was named after Prince Philip who was on the August 23, 1954 cover of *Life* magazine, which was the day he was born.





Maps of Nigeria and Africa. Without any representation from Africans, the Berlin Conference in 1884, divided Africa into roughly 50 colonies, forming the modern map of Africa.

The first gift from my paternal grandfather was my birthname Chukwurah. It's also spelled "Chukwura." It's pronounced by Americans as "chuk-WER-uh" but my father says it as "Chu-kwu-RAH." In African tradition, there's a meaning—and sometimes a prayer—behind a child's name.

The first element, Chukwu, in my name is the longer form of "*Chi*." It means "God" in the Igbo language of

Nigeria. The second element, *rah*, means "leave." And my name Chukwurah was my grandfather's plea to God—the giver and the taker—to leave me behind as his gift.

Philip was born when babies often died in the first couple of years of their lives. His grandfathers lost count of how many children they had

buried in their backyards.



So, my name Chukwurah expressed every father's prayer that their sons bury them, instead of them burying their sons. **Clip A95, 1.31**

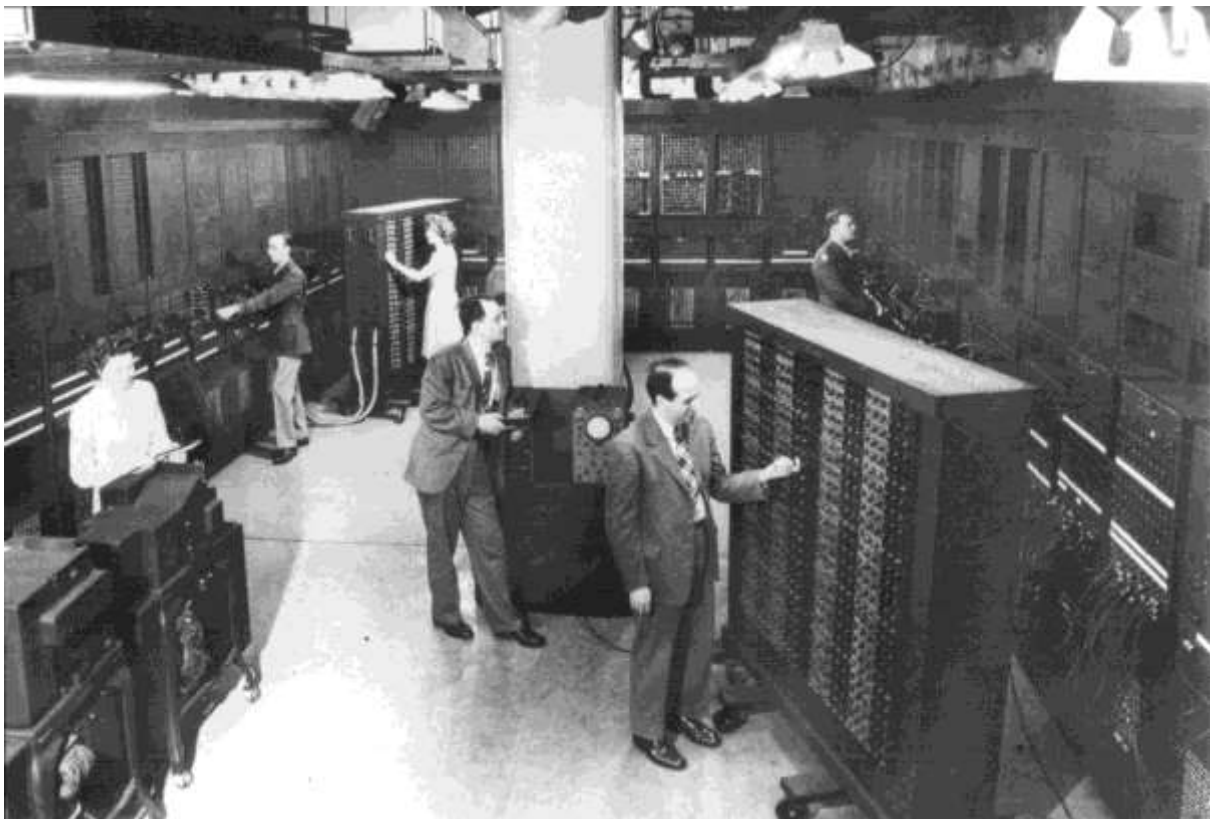
Philip was the oldest in his family. He has four sisters and four brothers. They all call him "Chukwurah."



Philip (far right) and his family in Uromi, Nigeria on December 24, 1962.

When Philip was growing up, only a few computers existed in the United States and Europe, and none existed in Africa. They

were very, very expensive, weighed about 30 tons (the same weight as five elephants or fifteen cars), and they were kept and used in very large rooms.



The first electronic computer, shown here, weighed as much as five elephants.

In the 1950s, most people believed that computers would never be found in Africa,

and certainly never expected them to be pioneered by a person born in Africa.

In 1962 in Uromi (Nigeria), I worked after school as a volunteer blacksmith's assistant. I fanned his bellows and watched in amazement as he lifted red-hot metals and shaped them to spears or guns. To me then, his spears—not computers—were high-tech.

Philip Emeagwali grew up in Nigeria, Africa, in the 1960s, when the cutting edge inventions and innovations in computer technology were made in far away place called Silicon Valley, California in the United States.

In the 1970s, the term “Silicon Valley” was coined to describe the place—the Santa Clara Valley south of San Francisco—where researchers invented how to compute very quickly by cramming thousands of tiny transistors—with distinct “on” and “off”—states onto a silicon chip, or the miniature form of an electronic circuit.





John Bardeen (left), William Bradford Shockley (middle), and Walter Houser Brattain (right) shared the Nobel Prize in Physics in 1956 by co-inventing the transistor. William Shockley was once invited over for dinner in the home in Corvallis, Oregon that Philip Emeagwali lived in latter in 1975. Shockley is remembered for his roiling controversial statements that called for the sterilization of black people with IQs lower than 100. That made Shockley a disliked scientist and he was buried without a funeral. Ironically, Emeagwali who crossed path at the same dinner table with Shockley, is often listed amongst the ten most intelligent people in the world.

In the 1980s, Emeagwali achieved fame when he invented a way to program 65,000 computers—that were crammed onto one superinternet—to become the world's fastest supercomputer.

I write to record the things I did and why I did them. Only I can say those things since only I have known Chukwurah Philip Emeagwali since August 23, 1954.

I was born in a Boy's Quarter in Akure, Nigeria. In that year, 1954, Nigeria had only one trained engineer and the word "computer" had not entered Africa's public language. And computers communicating with each other was science fiction. I started programming an analog computer—that represents data by measurable quantities—in June 1970.

And in June 1974, I envisioned someday programming an ensemble, or a group of 65,000 electronic computers working together as one to achieve speeds 65,000 times faster. Unlike the human or analog computer, those 65,000 computers will process information in digital form.

I will use 65,000 emails, sent and received at the same time, to hold all 65,000 computers as one cohesive supercomputer. Today, we call that ensemble an internet. Hopefully, in a thousand year, our descendants will call it a superbrain, or their terminology for 65,000 billion computers that will have no awkward email communication between computers. That coming together of bytes, broadband, and biology will recreate our species as Humanity, Version 2.0.

## On the 50th anniversary of the computer, we salute the brilliant pioneers behind this modern miracle

Just fifty years ago, the world's first electronic computer was unveiled. This remarkable invention has changed our lives faster than any other invention in history. Moreover, the rate of change is accelerating.

The women and men of EDS salute those whose insights, vision and persistence have contributed to developing this remarkable tool.

A leader among them is Dr. Philip Emeagwali. Emeagwali is an interdisciplinary computer scientist and inventor who developed software that allowed multiple processors to tackle complex problems simultane-

ously, paving the way to solving problems once thought unsolvable.

Inspired by the complex designs of nature, Emeagwali used geometry to prove that bees use the most efficient method possible to construct their honeycombs. He reasoned that a computer

based on the honeycomb design could improve efficiency. It did. His design breakthrough allowed 65,000 processors working together to perform the world's fastest computation at 3.1 billion calculations per second.

That was three times the speed of the fastest supercomputers of the day – at one-fifth the cost.

Today, he is pushing the limits of computing and networking even further. Dr. Emeagwali's inventions have helped improve yields from oil reservoirs as well as the accuracy of weather forecasting.

He is also working on developing supercomputers powerful enough to simulate weather trends over a century to investigate atmospheric warming.

EDS applauds Dr. Emeagwali and all those who are harnessing the power of information to improve life for millions. Without their work, we couldn't do ours.



*Dr. Philip Emeagwali*